PROGRAM SUCCESS – A NEW WAY TO PREDICT IT

John Higbee

DAU

9 October 2003

STARTING POINT

- **Tasking From ASA(ALT) Claude Bolton (March 2002)**
  - **Despite Using All the Metrics Commonly Employed to Measure Cost, Schedule, Performance and Program Risk, There are Still Too Many Surprises (Poorly Performing /Failing Programs) Being Briefed "Real Time" to Army Senior Leadership**
- **DAU (with Industry Representatives) was Asked to:**
  - **Identify a <u>Comprehensive Method</u> to Better Determine the Probability of Program Success**
  - **Recommend a <u>Concise "Program Success" Briefing Format</u> for Use by Army Leadership**

PROCESS PREMISE

- **Current Classical Internal Factors for Cost, Schedule, Performance and Risk (Largely Within the Control of the Program Manager) Provide an Important Part of Program Success Picture – But NOT the WHOLE Picture**
  - **Program Success also Depends on External Factors (Largely Not Within the PM's Control, but That the PM Can Influence By Informing/Using Service/OSD Senior Leadership)**

- **Accurate Assessment of Program Success Requires a Holistic Combination of Internal and External Factors**
  - **Internal: Requirements, Resources, and Execution**
  - **External: Fit in the Vision, and Advocacy**

- **Develop An Assessment Model/Process Using Selected Metrics For Each Factor - Providing an Accurate "Program Pulse Check"**
  - **Avoiding The "Bury In Data" Technique**

PROGRAM SUCCESS PROBABILITY SUMMARY

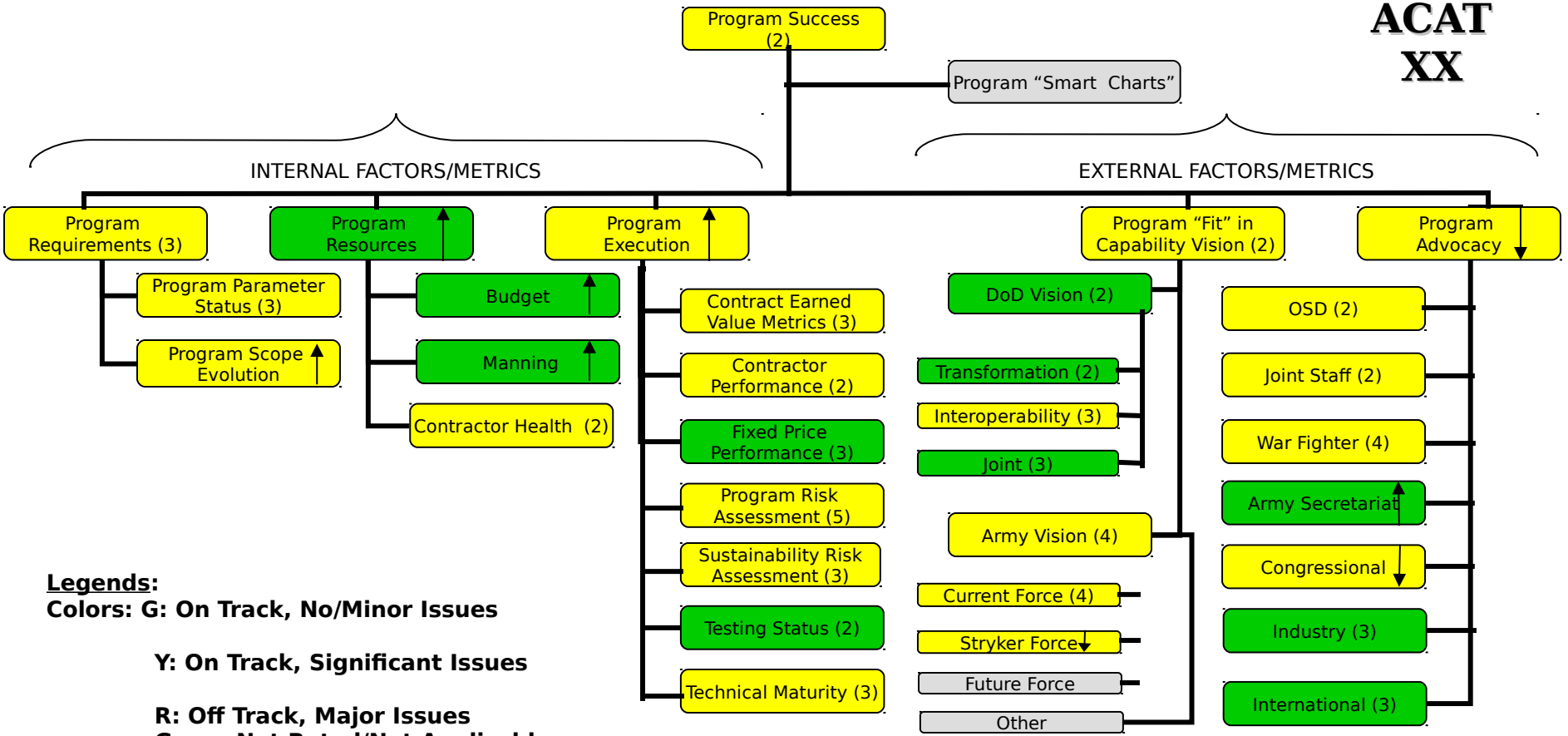
PEO XXX

COL, PM

Date of Review: dd mmm

Program Acronym

ACAT XX



Legends:
Colors: G: On Track, No/Minor Issues

Y: On Track, Significant Issues

R: Off Track, Major Issues
Gray: Not Rated/Not Applicable
Trends: Up Arrow: Situation Improving
(number): Situation Stable (for # Reporting Periods)
Down Arrow: Situation Deteriorating

Program Life Cycle Phase: _____

PEO XXX

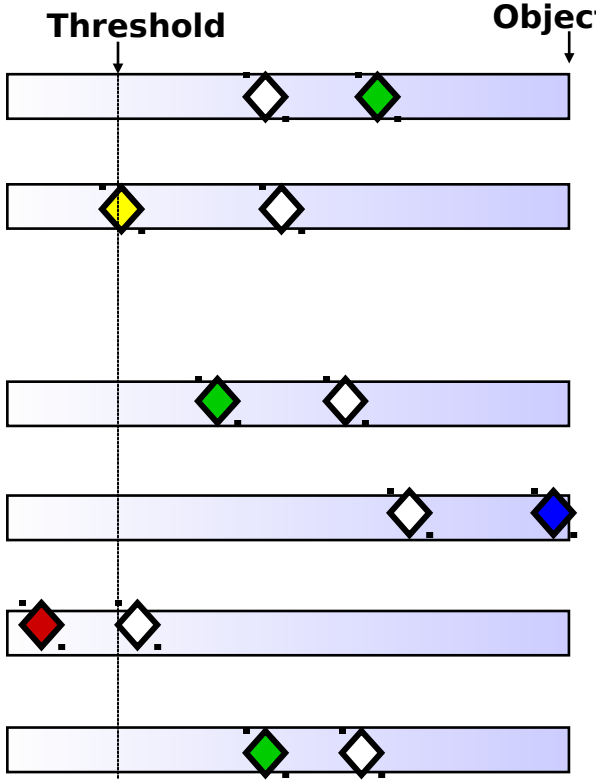
REQUIREMENTS - PROGRAM PARAMETER STATUS

Program Acronym ACAT XX

COL, PM

Date of Review: dd mmm yy

(EXAMPLES)



Position diamond along bar to best show where each item is in terms of its threshold - objective range.

- Status as of Last Brie (mm/yy – e.g. "01/03")

Comments:

Predictive

Y

Historical

Y (3)

PEO XXX

RESOURCES - BUDGET

Program Acronym ACAT XX

COL, PM

Date of Review: dd mmm yy

Army Goals (Obl/Exp):	First Year	Second Year	Third Year
RDT&E,A	95%/58%	100%/91%	-------
OP,A	70%/---	85%/---	100%/---
OM,A			-------

SUFF R/Y/G	FY01	OBL/EXP	FY02	OBL/EXP	FY03	OBL/EXP	FY04	FY05	FY06	FY07	FY08	FY09
RDT&E,A		Xx %/yy%		Xx %/yy%		Xx %/yy%						
OPA	N/A	Xx %/yy%	N/A	Xx %/yy%	N/A	Xx %/yy%	N/A	N/A	N/A			
APA	N/A	Xx %/yy%	N/A	Xx %/yy%	N/A	Xx %/yy%	N/A	N/A	N/A	N/A	N/A	N/A
WPA	N/A	Xx %/yy%	N/A	Xx %/yy%	N/A	Xx %/yy%	N/A	N/A	N/A	N/A		
O&M,A	N/A	Xx %/yy%	N/A	Xx %/yy%		Xx %/yy%						
MILCO	N/A	Xx %/yy%	N/A	Xx %/yy%	N/A	Xx %/yy%	N/A	N/A	N/A	N/A	N/A	N/A

Predictive

G

Comments:

Historical

G

PEO XXX

EXECUTION – CONTRACT EARNED VALUE METRICS [give short contract title]

Program Acronym

COL, PM

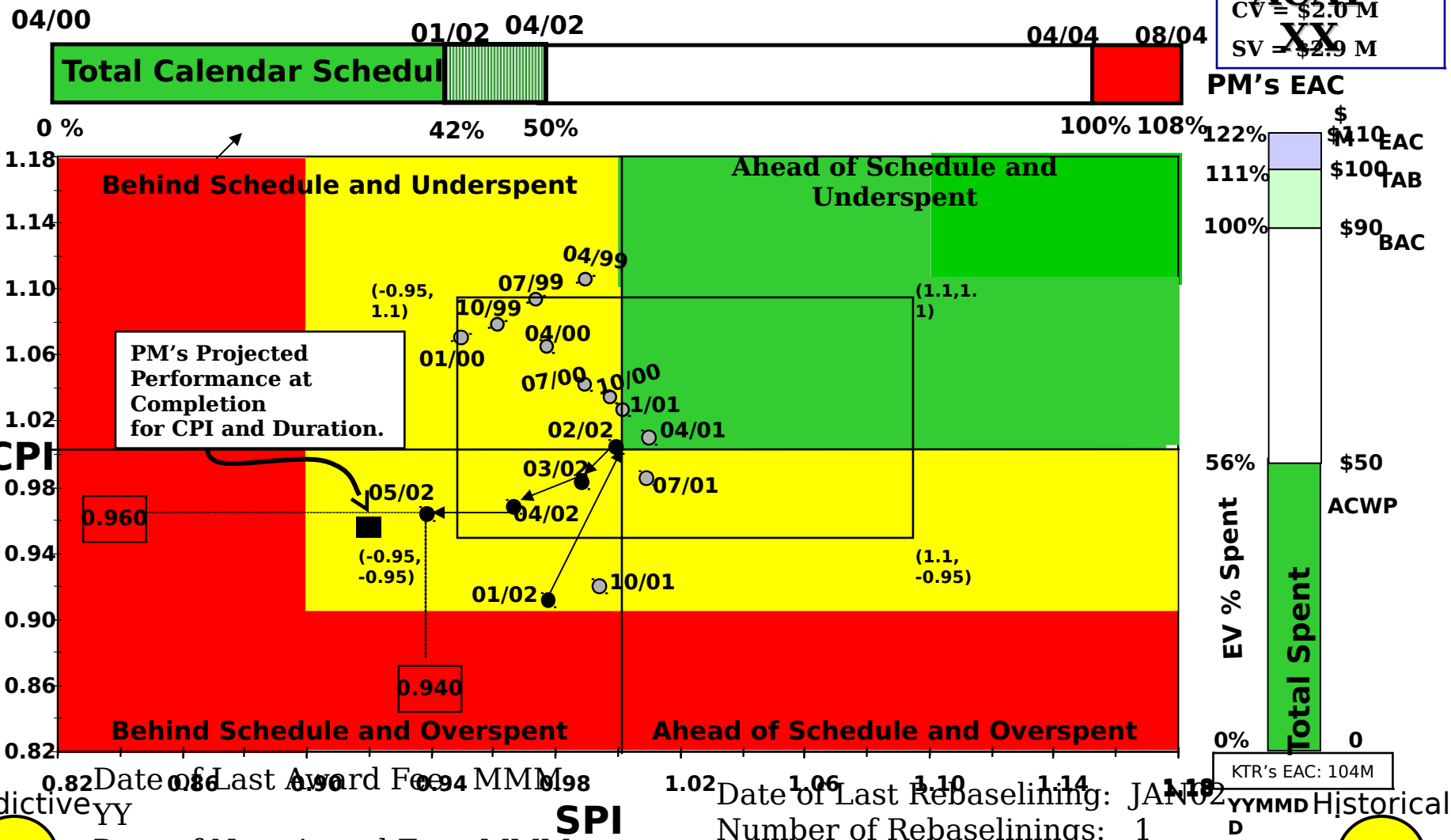
Date of Review: dd mmm yy

Axxxxx-YY-Cxxxx

Contractor Name [Prime or Significant Sub]

ACAT XX

[TCPI$_{EAC}$ = 0.76]
CV = $2.0 M
SV = $2.9 M



Predictive

Date of Last Award Fee: MMM YY

Date of Next Award Fee: MMM YY

Date of Last Rebaselining: JAN02

Number of Rebaselinings: 1

Date of Next Rebaselining: MMM YY

Historical

YYMMDD

PEO XXX

PROGRAM "FIT" IN CAPABILITY VISION

Program Acronym

COL, PM

Date of Review: dd mmm yy

ACAT XX

AREA(Examples)	STATUS	TREND
DoD Vision G (2)		
• Transformation G (2)		
• Interoperability Y (3)		
• Joint G (3)		
Army Vision Y (4)		
• Current Force Y (4)		
• Stryker Force Y	↓	
• Future Force	(N/A)	(N/A)
• Other (N/A)	(N/A)	
• Overall Y (2)		

Predictive

Y

Historical

Y (2)

STATUS/FUTURE PLANS

- **Status**
  - **Multiple Acquisition Staffs (Navy, Air Force, USD(AT&L), NSA, and MDA) Have Requested the Product and are Reviewing /Considering It for Use**
  - **Multiple DoD and Industry Program Managers (including the F/A-22 Program Manager) have Adopted It as an Assessment/ Reporting Tool**
  - **GAO, MITRE and IDA have Requested/Received Copies of the Tool for Their Use**
- **OCT 2002 – ASA(ALT) Briefed on Effort; Expressed Intent to Implement Program Success Factors Across Army**
- **DEC 2002 – Program Success Factors Pilot Commences in Two Army Programs (ACS; Phoenix**
- **JULY 2003 – Army Decides to Phase-Implement Program Success Factors Across Army Acquisition (Fall 2003); Automation Effort Begins on Army AIM System**

BACKUP SLIDES

BRIEFING PREMISE

- **<u>Significant Challenge</u> – Develop a Briefing Format That**
  - **Conveyed Program Assessment Process Results Concisely/Effectively**
  - **Was Consistent Across Army Acquisition**

- **<u>Selected Briefing Format</u>:**
  - **Uses A Summary Display**
    - **Organized Similarly to a Work Breakdown Structure**
      - **Program Success (Level 0); Factors (Level 1); Metrics (Level 2)**
  - **Relies On Information Keyed With Colors And Symbols, Rather Than Dense Word/Number Slides**
    - **Easier To Absorb**
  - **Minimizes Number of Slides**
    - **More Efficient Use Of Leadership's Time**

2d Gen FLIR

UNCLASSIFIED

February 4, 2002
MAJ Ron Jacobs, SAAL-SA, COM 703-604-7018
Mr. Greg Wade, DAPR-FDM, COM 703-692-6253

program Description

Mission:
-Provides enhanced capability to fight during periods of reduced visibility. Also, provide multiple platforms the capability to "see farther than they can shoot" and "see the same battle space".

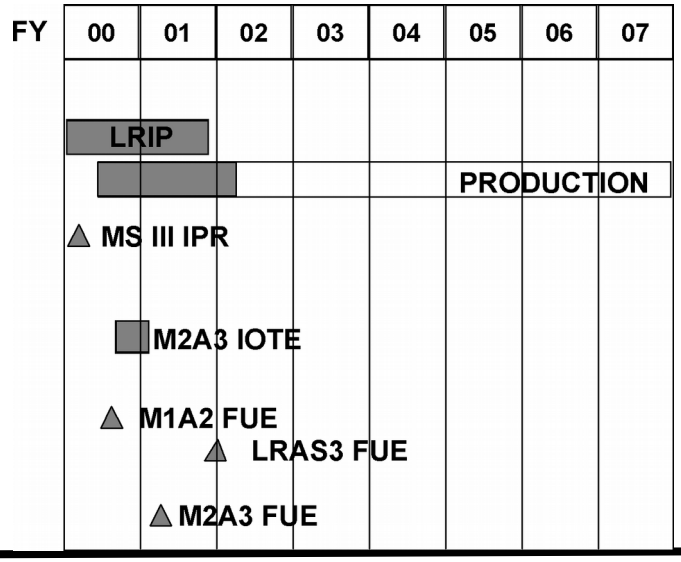
Characteristics/Description:
- Common "B kit" for LRAS3, Abrams and Bradley
- Unique "A kit" for each sight
- FOV: Narrow 2 degrees x 3.6 degrees
  Wide 7.5 degrees x 13.3 degrees

Capability/Improvements:
- > range over 1st Gen FLIR
- +55% target detection
- +70% target recognition
- +150% target identification

Special Features:
- Digital output
- Adapts to different platforms
- 2X + 4X Electronic Zoom
- Improved Displays

Contractors:
Raytheon
Dallas, TX - Manufactures LRAS3, CITV, B Kit and related spares. FY02 $ 63.6M + TBD
DRS
Palm Bay, FL - Manufactures LRAS3, TIS, B Kit and related spares. FY02 $ 37.2M + TBD

Schedule



Program Funding

FY02 President's Budget (As of June 26, 2001)

	PRIOR	00	01	02	03	04	05	06	07	CTC	TOTAL
RDTE	205.2	1.5	1.5	0.8	0.0	0.0	0.0	0.0	0.0	0.0	209.0
PROC	284.9	155.5	181.4	168.6	157.9	147.0	150.7	148.4	114.8	217.1	1726.3
TOTAL	490.1	157.0	182.9	169.4	157.9	147.0	150.7	148.4	114.8	217.1	1935.3
QTY	740	468	487	616	441	446	478	370	186	606	4838

FY03 President's Budget (As of January 25, 2002)

	PRIOR	00	01	02	03	04	05	06	07	CTC	TOTAL
RDTE	205.2	1.5	1.4	0.8	0.0	0.0	0.0	0.0	0.0	0.0	208.9
PROC	284.9	155.5	177.2	167.8	133.5	119.1	130.9	129.0	97.9	213.2	1609.0
TOTAL	490.1	157.0	178.6	168.6	133.5	119.1	130.9	129.0	97.9	213.2	1817.9
QTY	740	468	487	620	445	458	496	439	318	180	4651
Prg Chg	0.0	0.0	-4.3	-0.8	-24.4	-27.9	-19.8	-19.4	-16.9	-3.9	-117.4

Notes
FY03 President's Budget quantities reflect current platform requirements. Database will be updated during the POM process.

Current Status

- **COST:**
  - RDTE $208.9M
  - PROC $1,609.0M
- **SCHEDULE:**
  - On Schedule
- **TECHNICAL:**
  - Meeting technical requirements
- **FIELDING:**
  - ABRAMS 1CD (3QFY02)
  - BRADLEY 1CD (2QFY02)
  - LRAS3 4ID(M) (3QFY02)
    1ST IBCT (4QFY02)
    1CD (1QFY03)
- **FUNDING:**

	FY02	FY03	
- RDTE	$ 0.8M	$ 0.0M	LRAS3 FBCB2 Interface
- PROC	$168.6M	$133.5M	B Kits and Sights for Abrams, Bradley and LRAS3
- QTY	620	445	

- **ISSUES:**
  - None
- **TRANSFORMATION CAMPAIGN PLAN:**
  - This program supports the Legacy-to-Objective transition path of the Transformation Campaign Plan (TCP).

2d Gen FLIR

UNCLASSIFIED

February 4, 2002
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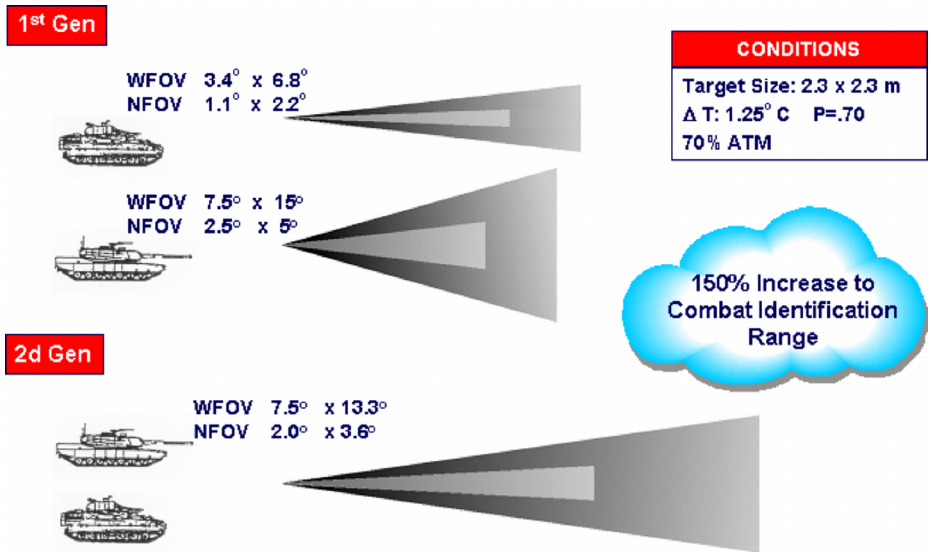
2nd Gen FLIR



Congressional / OSD Issues

None.

Requirements and Unit Costs

QUANTITY REQUIREMENTS

AAO: Not yet determined
Proc Objective: 4,651 (1)

O&O / ORD		
Unit	ORG	QTY
2 FLIRS per M1A2SEP		
2 FLIRS per BFVS		
1 FLIR per LRAS3		

FIELDING

- Bradley
  1CD (2QFY02)
- Abrams
  1CD (3QFY02)
- LRAS3
  4ID(M) (3QFY02)
  1ST IBCT (4QFY02)
  1CD (1QFY03)

UNIT COST DATA

OVER TOTAL PROGRAM TY $

$Unit Costs ($M)	Then-Year $
Flyaway Cost	0.345
Wpn Sys Cost	*
Proc Cost	0.346
Prog Acq Cost	0.391
Qty	4,651
Program ($M)	**Then-year $**
RDTE	208.9
Proc	1,609.0
MCA	0
Tot Program	1,817.9

Note: Weapons system costs are resident in other platform's unit cost data

Source: FY03 President's Budget

(1) Does not include additional quantities for IBCT for LRAS3

FY02 Congressional Track

• No language	• No language
SASC: • No language	**SAC:** • No language
CONF: • No language	**CONF:** • No language

PEO XXX

REQUIREMENTS - PROGRAM SCOPE EVOLUTION

Program Acronym

COL, PM

Date of Review: dd mmm yy

ACAT XX

	Requirement (CE to FUE)	Funded Pgm (Budgeted/Obl)	Schedule (Used / Planned)
• Original	ORD (date)	$#.#B / NA	NA / 120 Months
• Current	ORD (date)	$#.#B / $#.#B	170/210 Months

Comments:

Stable
Increased
Descoped

Predictive

Y

Historical

Y

PEO XXX

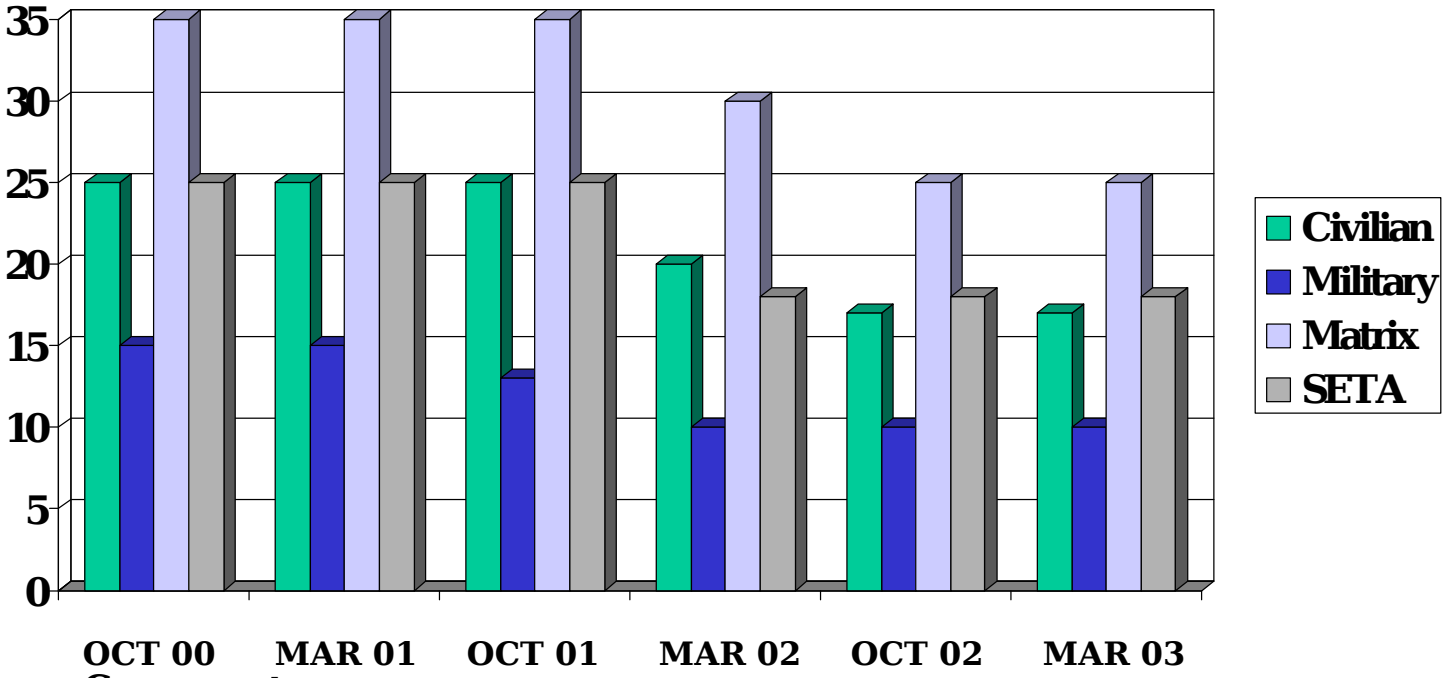
RESOURCES - MANNING

Program Acronym

ACAT XX

COL, PM

Date of Review: dd mmm yy



Comments:

What Key Billets are Vacant?

- **DPM Billet Still Vacant (Estimate Fill in Two Months)**
- **Lead Software Engineer (Emergent Loss) – Tech Director Filling In**
  - **Need S/W Experienced GS-14 ASAP**

Is the Program Office Adequately Staffed? Yes (except as noted above)

Predictive G

Historical G↑

PEO XXX

RESOURCES – CONTRACTOR HEALTH

COL, PM

Date of Review: dd mmm yy

Program Acronym

ACAT XX

- **Corporate Indicators**
  - **Company/Group Metrics**
    - **Current Stock P/E Ratio**
    - **Last Stock Dividends Declared/Passed**
    - **Industrial Base Status (Only Player? One of __ Viable Competitors?)**
      - **Market Share in Program Area, and Trend (over last Five Years)**
    - **Significant Events (Mergers/Acquisitions/ "Distractors")**
- **Program Indicators**
  - **Program-Specific Metrics**
    - **"Program Fit" in Company/Group**
    - **Program ROI (if available)**
    - **Key Players, Phone Numbers, and their Experience**
    - **Program Manning/Issues**
    - **Contractor Facilities/Issues**
    - **Key Skills Certification Status (e.g. ISO 9000/CMM Level)**
- **PM Evaluation of Contractor Commitment to Program**
  - **High, Med, or Low**

Predictive

Y

Historical

Y(2)

PEO XXX

EXECUTION – CONTRACTOR PERFORMANCE

COL, PM

Date of Review: dd mmm yy

Program Acronym ACAT XX

- **Contractor Performance Assessment (Drawn From CPARS/PPIMS, etc)**
  - **Last Evaluation**
    - **(Provide Summary of Evaluation Last Provided to Contractor, Along with PM evaluation of Current Status)**
      - **Highlight Successes as Well as Areas of Concern**
  - **Performance Trend (over the Contract Period of Performance)**
    - **Highlight Successes as Well as Areas of Concern**

- **Award/Incentive Fee History**
  - **Summary of Actual Award/Incentive Fees Provided to Contractor**
    - **If Different than Specified in Fee Plan, Discuss Reasons/Actions Indicated from the Situation**
    - **Are Fee Awards Consistent with Contractor Performance Assessments?**

Predictive

G

Historical

G(2)

PEO XXX

EXECUTION – FIXED PRICE PERFORMANC

Program Acronym

COL, PM

Date of Review: dd mmm y

ACAT XX

- **DCMA Plant Rep Evaluation**
  - **Major Issues**
- **Delivery Profile Graphic (Plan vs Actual)**
  - **Major Issues**
- **Progress Payment Status**
  - **Major Issues**

Predictive

G

Historical

G(3)

PEO XXX

EXECUTION - PROGRAM RISK ASSESSMENT

COL, PM

Date of Review: dd mmm yy

Program Acronym

ACAT XX

•A brief description of Issue # 1 and rationale for its rating.

•Approach to remedy/mitigation

•A brief description of Issue # 5 and rationale for its rating.

•Approach to remedy/mitigation

•A brief description of Issue # 2 and rationale for its rating.

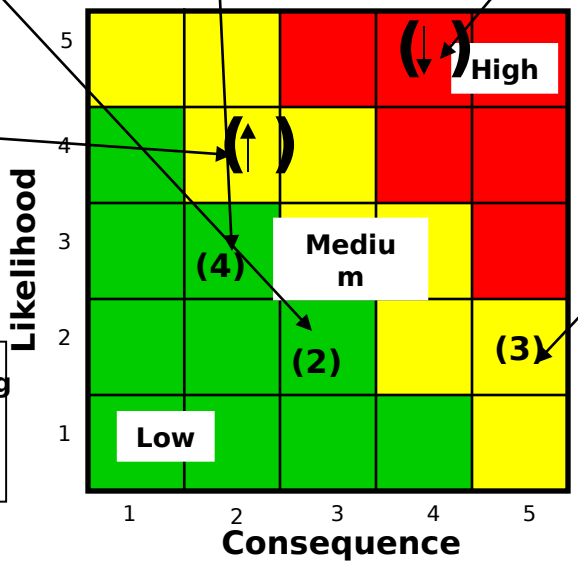
•Approach to remedy/mitigation

•A brief description of Issue # 6 and rationale for its rating.

•Approach to remedy/mitigation

•A brief description of Issue # 3 and rationale for its rating.

•Approach to remedy/mitigation



Trends: Up Arrow: Situation Improving
(#): Situation Stable (for # Reporting Periods)
Down Arrow: Situation Deteriorating

Predictive

Y

Historical

Y(5)

EXECUTION – SUSTAINABILITY RISK ASSESSMENT

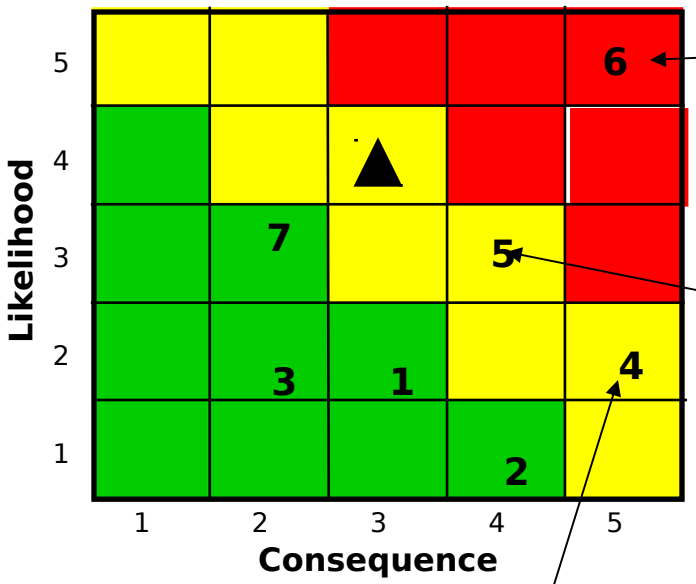
PEO XXX

COL, PM

Date of Review: dd mmm yy

Program Acronym CAT X

Low Risk | Medium Risk | High Risk



RISK # 6

Brief description of Issue and rationale for its rating.

Approach to remedy/mitigation.

RISK #5

Brief description of Issue and rationale for its rating.

Approach to remedy/mitigation.

RISK # 4

Brief description of Issue and rationale for its rating.

Approach to remedy/mitigation.

Sustainability Areas *(examples)*

▲ : Overall Assessment

1: Training
2: Support Equipment
3: Publications
4: Facilities
5: Maintenance Concept
6: Supply Support
7: MTBF/Ao/Reliability

Predictive

Y

Historical

Y(3)

PEO XXX

EXECUTION – TESTING STATUS

Program Acronym

COL, PM

Date of Review: dd mmm yy

ACAT XX

- Contractor Testing (e.g. Qualification, Integration) - Status (R/Y/G)
  - Major Points/Issues
- Developmental Testing – Status (R/Y/G)
  - Major Points/Issues
- Operational Testing – Status (R/Y/G)
  - Major Points/Issues
- Follow-On Operational Testing – Status (R/Y/G)
  - Major Points/Issues
- Special Testing – Status (R/Y/G) (Could Include LFT&E, Interoperability Testing (JITC), Etc.)
  - Major Points/Issues
- TEMP Status
- Other (DOT&E Annual Report to Congress, etc – As Necessary)

Predictive G

Historical $G_{(2)}$

PEO XXX

EXECUTION – TECHNICAL MATURITY

Program Acronym

COL, PM

Date of Review: dd mmm yy

ACAT XX

- **CRITICAL TECHNOLOGY MATURITY**

CRITICAL TECHNOLOGY	DESCRIPTION/ISSUE	TRL	G/Y/R

- **PROGRAM DESIGN MATURITY**
  - **ENGINEERING DRAWINGS** G/Y/R
    - PERCENTAGE OF DRAWINGS APPROVED /RELEASED FOR USE
    - ISSUES
  - **PROGRAM INTEGRATION/PRODUCTION FACTORS**

INTREGRATION/PRODUCTION FACTOR	DESCRIPTION/ISSUE	IRL/PRL	G/Y/R

- **PROGRAM PRODUCTION MATURITY**
  - **KEY PRODUCTION PROCESSES** G/Y/R
    - PERCENTAGE OF KEY PROD. PROC. UNDER STAT. PROCESS CONTROL
    - ISSUES

Predictive

Historical

PEO XXX

PROGRAM ADVOCACY

Program Acronym ACAT XX

COL, PM

Date of Review: dd mmm yy

AREA(Examples)	STATUS		TREND	
• OSD	Y	(2)		
– (Major point)				
• Joint Staff	Y	(2)		
– (Major point)				
• War Fighter	Y	(4)		
– (Major point)				
• Army Secretariat	G			↑
– (Major point)				
• Congressional			Y	↓
– (Major point)				
• Industry	G	(3)		
– (Major Point)				
• International	G	(3)		
– (Major Point)				
• Overall	Y			↓

Predictive

Y

Historical

Y↓

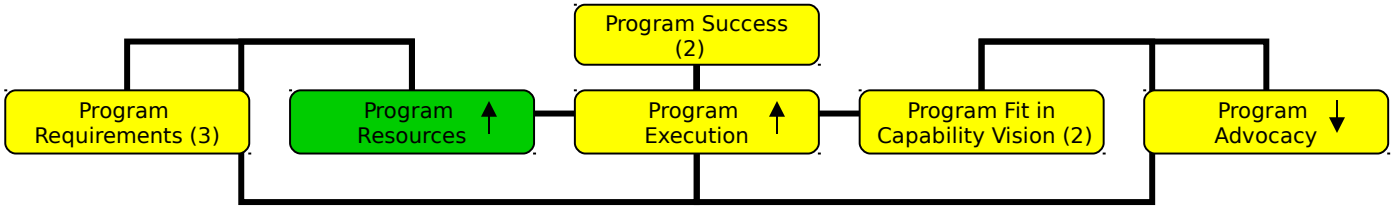
PEO XXX

FINDINGS / ACTIONS

Program Acronym ACAT XX

COL, PM

Date of Review: dd mmm yy



- Comments/Recap – PM's "Closer Slide"

QUANTIFICATION PROCESS

- **First Three Factors (Requirements, Resources, and Execution) Represent *How the Program is Operating***
  - **Nominally 60% in Aggregate**
- **Last Two Factors (Fit in Strategic Vision and Advocacy) Represent *Whether or Not the Program Should/Could be Pursued***
  - **Nominally 40% in Aggregate**
- **First Three Factors (in Aggregate) Have "Greater Effect" on Program Success than Last Two Factors, but NOT a "Much Greater Effect"**

PROBABILITY OF PROGRAM SUCCESS "BANDS"

- **Green (80 to 100)**
  - **Program is On Track for Providing Originally-Scoped Warfighting Capability**
    - **Within Budgeted Cost and Approved Schedule**
    - **Issues are Minor in Nature**
- **Yellow (60 to <80)**
  - **Program is On Track for Providing Acceptable Warfighting Capability**
    - **With Acceptable Deviations from Budgeted Cost and Approved Schedule**
    - **Issues May Be Major but are Solvable within Normal Acquisition Processes**
- **Red (< 60, or Existing "Killer Blows" in Level 2 Metrics)**
  - **Program is OFF Track**
    - **Acceptable Warfighting Capability**
      - **will NOT be Provided, or**
      - **Will ONLY be Provided with Unacceptable Deviations from Budgeted Cost and Approved Schedule**
    - **Issues are Major and NOT Solvable within Normal Acquisition Processes (e.g. Program Restructure Required)**

“KILLER BLOW”

- **“Killer Blow” at the Sub-Factor (Level II) Level**
  - **Action Taken By A Decision Maker In The Chain Of Command (Or An “Advocacy” Player) Resulting In Program Non-Executability Until Remedied**
    - **For Example: Zeroing Of Program Budget By Congressional Committee/Conference**
  - **Results In Immediate “Red” Coloration Of Associated Level 2, Level 1 And Overall PS Metrics Until Remedied**

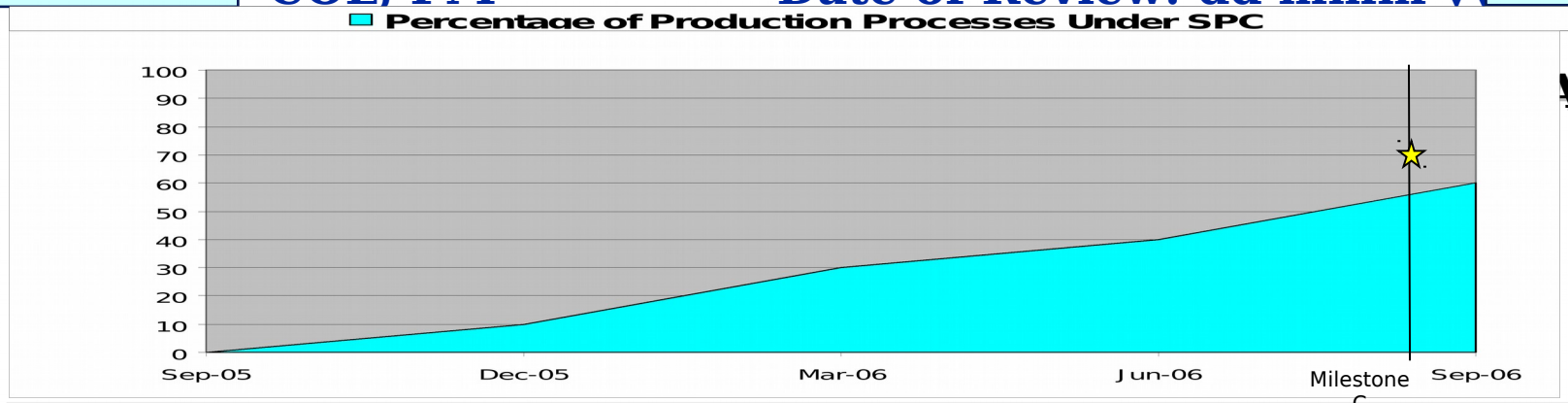
PEO XXX

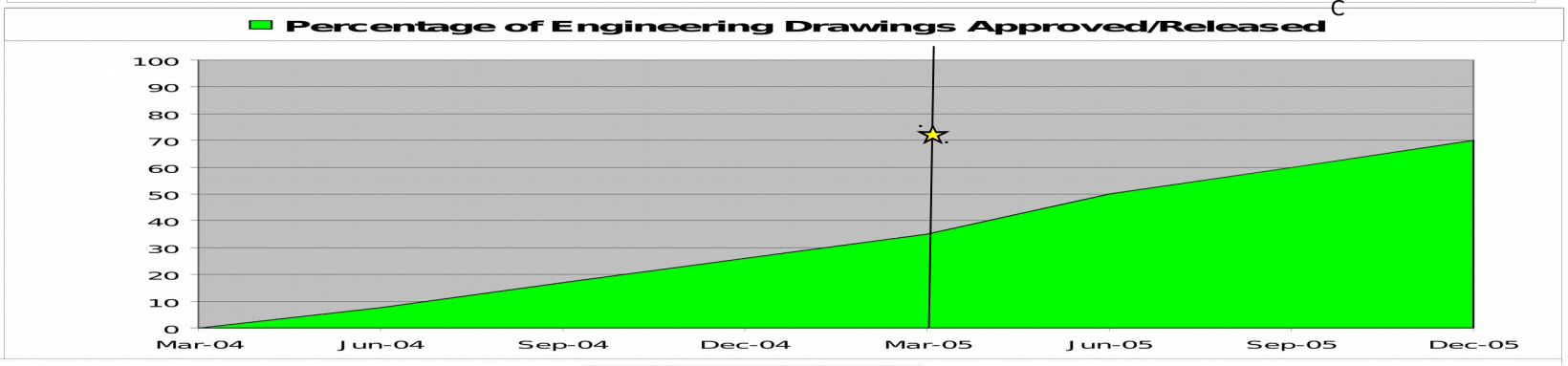
EXECUTION – TECHNICAL MATURITY

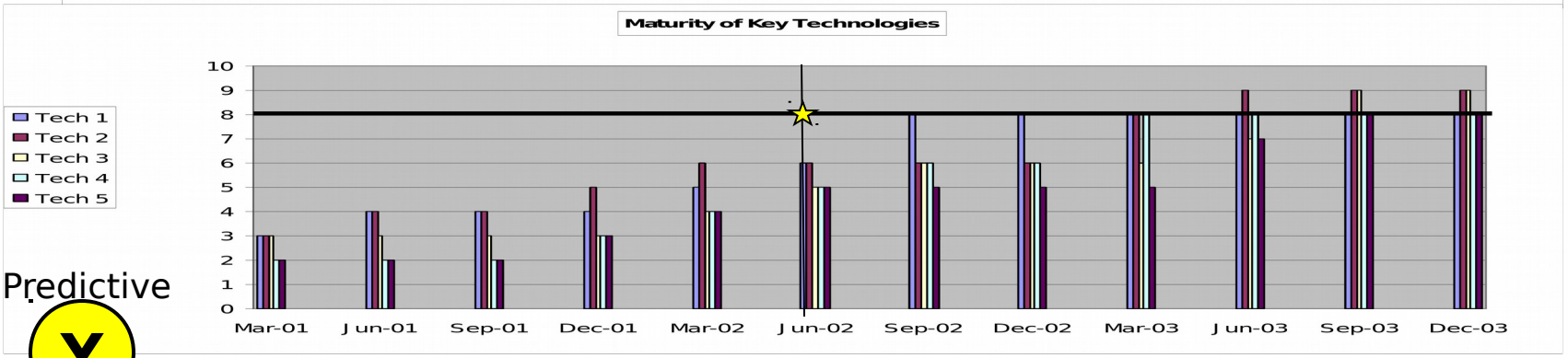
Program Acronym ACAT XX

COL, PM

Date of Review: dd mmm yy







Predictive

Y

Historical

Y(3)

Program Initiatio

PEO XXX

EXECUTION – CONTRACTOR PERFORMANCE

Program Acronym

COL, PM

Date of Review: dd mmm yy

ACAT XX

Contractor:	((Contractor Name))	Contract Start Date:	MMM YY
Program:	((Program Name))	Estimated Completion Date:	MMM YY
Contract Number:	N00000-00-C-0000		

Item: (CPAR, IPAR or AF)	AF	CPAR	AF	AF	IPAR	CPAR	IPAR	AF	IPAR	IPAR	AF	IPAR	CPAR	IPAR
Period Ending: (Mmm YY)	Jan 99	Apr 99	Jul 99	Jan 00	Mar 00	Apr 00	Jun 00	Jul 00	Sep 00	Dec 00	Jan 01	Mar 01	Apr 01	Jun 01
Months Covered: (NR)	6	12	6	6	3	12	3	6	3	3	6	3	12	3
Areas to Evaluate														
a. Technical (Quality of Product)		EXC			EXC	EXC	EXC							
(1) Product Performance		VG			VG	VG	VG							
(2) Systems Engineering		SAT			SAT	SAT	SAT							
(3) Software Engineering		MARG			MARG	MARG	MARG							
(4) Logistics Support/Sustainment		UNSAT			UNSAT	UNSAT	UNSAT							
(5) Product Assurance		EXC			EXC	EXC	EXC							
(6) Other Technical Performance		VG			VG	VG	VG							
b. Schedule		SAT			SAT	SAT	SAT							
c. Cost Control		MARG			MARG	MARG	MARG							
d. Management		UNSAT			UNSAT	UNSAT	UNSAT							
(1) Management Responsiveness		EXC			EXC	EXC	EXC							
(2) SubContract Management		VG			VG	VG	VG							
(3) Program Mgmt and Other Mgmt		SAT			SAT	SAT	SAT							
e. Other Areas		MARG			MARG	MARG	MARG							
(1) Communications		UNSAT			UNSAT	UNSAT	UNSAT							
(2) Support to Government Tests		UNSAT			UNSAT	UNSAT	UNSAT							
Award Fee Percentage:	85%		70%	90%				84%						

Predictive

Y

Historical

Y(2)